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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.:	10/662,619	Confirmation No.: 9762
Applicant:	Hyun Jin Kim et al.	
Filed:	September 15, 2003	
Title:	GOLF BALLS INCORPORATING PEPTIZERS AND METHOD OF MANUFACTURE	
Examiner:	Racann Trimiew	
Art Unit:	3711	
Docket No.:	0EKM-104792	
Date:	December 4, 2007	
Customer No.:	30764	

DECLARATION OF HYUN JIN KIM UNDER 37 C.F.R. § 1.132

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Hyun Jin Kim, residing in Carlsbad, California, declare as follows:

1) I am one of the named inventors of the invention described and claimed in the above-identified patent application.

2) I graduated from Aju University, Korea in February, 1984 with a BS degree in Chemical Engineering.

3) I attended graduate school at Hanyang University from March 1984 to August, 1986 graduating with a MS degree in Industrial Materials Science and Engineering.

4) I was employed by GE Plastics Co. from July 1988 to June 1992 as an Engineer and Materials Specialist initially in Seoul, Korea and then Evansville, Illinois.

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5) I attended graduate school at Case Western Reserve University from 1993 to 1997, graduating with a PhD in Science and Engineering in May, 1997.

6) I have worked for TaylorMade-adidas Golf Company from June 1997 to the present and I am currently Research Manager of the golf ball development group.

7) As a result of my education and work history, I have over 15 years experience in the field of polymer science and I am familiar with the structures, properties and analysis of high polymers, particularly rubbers, elastomers and other polymers used for golf ball development.

8) I am also familiar with the viscosities of polymers, methods for measuring these properties, and mathematical relationships that exist between these properties.

9) I submit this declaration in connection with the above-identified application to provide scientific data showing the difference between golf balls comprising metal salts of thiophenols versus golf balls comprising non-metal salts of thiophenols.

10) A metal salt of pentachlorothiophenol ("PCTP") is bis(pentachlorothiophenol)-zinc, hereinafter "Zn-$(PCTP)_2$".

11) A non-metal salt of pentachlorothiophenol ("PCTP") is ammonium pentachlorothiophenol, hereinafter "NH_4^+-(PCTP)".

12) Both Zn-$(PCTP)_2$ and NH_4^+-(PCTP) are examples of peptizers which are used in conjunction with a base rubber and a crosslinking (curing) agent which when compounded and reacted together make a compounded rubber useful as a component of a golf ball.

13) By varying the amount of peptizer in the rubber formulation to be compounded and cured, it is possible to change the properties of the cores of such golf ball components including the golf ball core and/or golf ball coefficient of restitution ("COR").

14) Typically petizers are introduced intro the rubber formulation by compounding with the base rubber as a powder dispersion initially and the compound is then sufficiently heated in the molding process to a temperature at which the crosslinking reaction occurs between the base rubber and the crosslinking agent, also known as the curing process.

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15) It is well known that a non-metal salt of PCTP, such as NH_4^+-(PCTP) would typically have a much lower melting point than the corresponding metal salts such as Zn-$(PCTP)_2$. In fact the melting point of NH_4^+-(PCTP) is 175~180°C , whereas Zn-$(PCTP)_2$ has been shown not to melt (but rather decomposes) at temperatures above 250 °C.

16) As the melting point of a non-metal salt of PCTP is close to the temperature at which curing takes place, the non-metal salts of PCTP, such as NH_4^+-(PCTP), will melt during the cure process, whereas metal salts of PCTP, such as Zn-$(PCTP)_2$, remain in a powder state during the cure process.

17) It is known that mixing a molten chemical with a rubber compound occurs much more efficiently than with a powder, and rubber compounded with NH_4^+-(PCTP) has a compound Mooney viscosity of only 34 versus a value of 39 for the corresponding rubber formulated with an identical amount of as Zn-$(PCTP)_2$.

18) The improved mixing efficiency for the non-metal salts thus results in lower compound viscosity and thus facilitates the mixing of all the components of the rubber formulation including those of the crosslinking agent and any co-crosslinking agent and core specific gravity adjusters such as zinc salts including zinc oxide. This in turn allows greater flexibility in designing the components of a rubber formulation both in terms of the compounds included and their relative amounts. This in turn allows additional control and optimization of important golf ball properties such core/ball weight, core/ball compression, core/ball COR and core/ball impact durability.

19) Additionally, the reaction byproduct of a Zn-$(PCTP)_2$ in the curing process is in the form of a Zn-salt. As stated above, metal salts such as zinc oxide are used in the core rubber formulations to adjust the core specific gravity in order to change the performance of the ball. In contrast, non-metal salts of PCTP do not have such metal salt by-products which adjust the specific gravity of a golf ball.

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All statements made herein of my own knowledge are true, and all statements made on information and belief are believed to be true, and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both under Section 1001, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: December 4, 2007 By: _____

Hyun Jin Kim

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